1. In the below elements which of them are values or an expression? eg:- values can be integer or string and expressions will be mathematical operators.

\* --> Expression

'hello’ --> Value

-87.8 --> Value

- --> Expression

/ --> Expression

* --> Expression

6 --> Value

2. What is the difference between string and variable?

**Ans:**

**String:** String is the collection of the characters surrounded by single quotes, double quotes, or triple quotes. Each character is encoded in the ASCII or Unicode character. So we can say that Python strings are also called the collection of Unicode characters.

*For Example:*

#Using single quotes

str1 = 'Hello Python'

print(str1)

#Using double quotes

str2 = "Hello Python"

print(str2)

#Using triple quotes

str3 = '''''Triple quotes are generally used for

represent the multiline or

docstring'''

print(str3)

**Variable:** Variable is a name that is used to refer to memory location. Variable names can be a group of both the letters and digits, but they must begin with a letter or an underscore. It is recommended to use lowercase letters for the variable name.

For Example: var = ‘Shubham’

3. Describe three different data types.

**Ans:**

Variables can hold values, and every value has a data-type. Python support multiple data types:

1. Number

**Int -** Integer value can be any length such as integers 10, 2, 29, -20, -150 etc. Its value belongs to int

**Float -** Float is used to store floating-point numbers like 1.9, 9.902, 15.2, etc. It is accurate up to 15 decimal points.

**complex -** A complex number contains an ordered pair, i.e., x + iy where x and y denote the real and imaginary parts, respectively.

1. List

List can contain data of different types. The items stored in the list are separated with a comma (,) and enclosed within square brackets [].

For example: list1 = [1, "hi", "Python", 2]

1. Tuple

Like lists, tuples also contain the collection of the items of different data types. The items of the tuple are separated with a comma (,) and enclosed in parentheses ().

Tuples are immutable means we cannot modify the size and value of the items of a tuple.

For example: tup = ("hi", "Python", 2)

4. What is an expression made up of? What do all expressions do?

**Ans:** Expression is a combination of operators and operands that is interpreted to produce some other value. The expression in Python produces some value or result after being interpreted by the Python interpreter.

5. This assignment statements, like spam = 10. What is the difference between an expression and a statement?

**Ans:**

Here Expressions can be assigned or used as operands, while statements can only be declared. Spam = 10 is an expression. Statements create side effects to be useful, while expressions are values or execute to values

6. After running the following code, what does the variable bacon contain?

bacon = 22

bacon + 1

**Ans:**

Variable bacon is the variable. Firstly, it hold the value 22 and after it add 1 in it so finally bacon hold the value 23.

7. What should the values of the following two terms be?

'spam' + 'spamspam'

'spam' \* 3

**Ans:**

Output of 'spam' + 'spamspam' will be spamspamspam

Output of 'spam' \* 3 will be spamspamspam

8. Why is eggs a valid variable name while 100 is invalid?

**Ans:**

A variable can have a short name (like x and y) or a more descriptive name. There are some rules to define the variable:

A variable name must start with a letter or the underscore character (e.g., eggs or \_eggs)

A variable name cannot start with a number (e.g., 100)

A variable name can only contain alpha-numeric characters and underscores (e.g., A-z, 0-9, and \_)

Variable names are case-sensitive (eggs, Eggs and EGGS are three different variables)

So, here 100 is not acceptable because variable name can’t start with number.

9. What three functions can be used to get the integer, floating-point number, or string version of a value?

**Ans:**

Let’s say, var = 100

To get the integer of we use function

var = int (100) -> gives the integer value

To get the floating-point number we use

Var = float (100)

To get the string version of value we use

Var = str(100)

10. Why does this expression cause an error? How can you fix it?

'I have eaten ' + 99 + ' burritos.'

**Ans:**

After executing the above expression, it gives a Type Error: can only concatenate str (not "int") to str i.e., we can concatenate only single datatype values

To fix this error we have to make 99 into ‘99’

'I have eaten ' + ‘99‘+ ' burritos.'

Output will be like this: I have eaten 99 burritos.